Multidimensional Scaling (MDS) is a way of analyzing the data to examine the similarities and the dissimilarities between the objects of a data set by calculating the distances between these objects, i.e. similarity matrix, using primarily the Euclidian distance measures and then visualizing these distances in a lower dimensional space to better interpret it. Although, at first, it was only the metric MDS that was available for research purposes and it wasn’t very common among the researchers, because of non-metric MDS being found in the 1960s as well as the advancements in technology and programming languages, it gained huge popularity among different disciplines such as psychology, sociology, education and in our case most importantly, marketing.

In general, there are some advantages and disadvantages of the Multidimensional Scaling method. One of the advantages is that both because of the end result of the method is simple and the fact that even the people who might not have specific knowledge about the data or the method can comprehend and comment on the distances between the objects in the map, thus also the similarities of the respondents’ perceptions, it is reasonable to say that it is fairly easy to interpret it. Another advantage is that although in cases that the data set has relatively small amount of pairwise similarities, scatter plot could be used too, in the cases that the data set is bigger, for example in the cases with more than 10000 objects or features in the data set, both because of the method’s own nature and it is practical function of dimensionality reduction, MDS offers a more compact method, in which the data can be divided into sub groups, making it easier to compare the similarities between the data points.

Dimensionality reduction of MDS is perceived as one of its core advantages. However, because while the decrease in the number of dimensions increases the interpretability of the model, the error in the representation of the data increases, which adds a feature of trade-off to the model, it can be interpreted both as an advantage and disadvantage depending on the situation. Another possible disadvantage of MDS is that when applying the non-metric MDS method to the data set it produces less precise results compared to the metric method. The reason for this is that in the non-metric method because the data we have is non-metric as the input information we can only use rank order of the pairwise distances and the dissimilarity matrix rather than metric distances and the true distance matrix.

In the City Trip Questionnaire, the respondents were asked to answer indirect questions and rate different attributes, which is more useful than asking direct questions of how they perceive the cities. The first reason for this is that people might not be able to answer directly how they perceive a product or a brand, in our case the cities, unless they are addressed more specific questions about it and this would create no insights that could be used for making informed managerial decisions. The second is that asking indirect questions also helps to explain the different ways, in which the cities were perceived and this is important because it would help us to target a specific dimension that the consumers’ don’t perceive it as we want them to do. As a result, both because of the reasons above and the fact that the Questionnaire data is based on 20 different attribute ratings about the cities, which are non-metric, in our analysis, we have used non-metric MDS.